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SOME PSYCHOLOGICAL ASPECTS OF MIGRAINE

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SOME PSYCHOLOGICAL ASPECTS OF MIGRAINE*†

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INTRODUCTION

Steiglitz wrote in 1935: "The riddle of migraine has developed a truly enormous literature dealing with the many aspects of the problem . . . these have been repeatedly and voluminously discussed." (27, p. 359)

Probably the most exhaustive review of the literature is that of Riely, financed by the Josiah Macy Jr. Foundation, covering all important contributions to 1932. (22) Since then there have been numerous articles, most of which have dealt with the purely medical aspects of migraine.

Confusion in this field is typified by Riely who defines migraine as "a periodic incapacitating headache culminating in nausea or vomiting, often preceded by visual disturbances, followed by sleep and occurring against a background of relatively perfect health," and then goes on to say that many cases of migraine fail to present any or several of these characteristics. In the words of Pulsifier, ". . . migraine is 'the most baffling and dramatic form of all headaches, a snag over which the medical profession has stumbled for centuries' . . ." (22, p. 398)

Even a superficial examination of the literature reveals this confusion as to classification, causation and treatment, and a failure to give adequate consideration to the affective behavior of the individual as other than a precipitating factor, even though emotional factors are listed as associates of migraine by practically all writers.

CAUSES OF MIGRAINE

Medical literature generally lists the following as causes of migraine: Inheritance as a Mendelian dominant, Emotional turmoil; (22, p. 404) Syphilitic arteriosclerosis, Progressive paralysis, Epidemic encephalitis, Lesions of the

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cervical sympathetic nerve, Cerebral vascular insults; (22, p. 405) and Allergies. (12) Fay says: "What makes a headache, reduced to simple terms, is the amount of fluid in and around the brain. Too much or too little of this fluid results in stretching the large blood vessels that supply the brain. The stretching is what hurts." (11, p. 6) "This explanation," if we interpret Ettelson liberally, "is rendered plausible by the recent demonstration of nerve fibers in the cerebral vessels. Spasms of the latter produce the various visual disturbances, aphasia, paresthesia, and the psychic phenomena of migraine." (10, p. 1016) As to what causes this imbalance of cerebral fluid Fay offers no explanation.

Precipitating factors listed in the medical literature are: Work, Home conditions, Syschezia, Peptic ulcers, Astigmatism, Thyroid deficiency, Chocolate, Eggs, Tobacco; (11, p. 400) Mental or physical fatigue, Continued worry, Fears, Excitement, Indiscretions of eating, drinking or smoking, and Exposure. (10, p. 1015)

Correlates of migraine are said to be all of the above and: Restlessness, Hypersensitivity, Upper stratum of society (11, p. 397), Changes in the visual field—blind spot, green, blue, red and white areas (21, p. 398), Conjunctival congestion affecting chiefly the right eye, Erythematous patches on the neck and chest, Excessive perspiration, Vertigo. (4, p. 424) Children and men are reported as more amenable to treatment than are women. Having been pregnant is said to decrease the efficacy of treatment. Negro women are said to be more amenable to treatment than are white women. (25, p. 435) Fineness of hair, large pupils, fine, smooth skin, cold, moist, clammy extremities, high arterial tension, nervous type of pulse, habitual fatigue, some secondary anemia, and allergy are given as associates of migraine. (25, p. 359)

That medical treatment is almost exclusively palliative is indicated by Ettelson who says: "In treating migraine, one must be content with lessening the frequency and severity of the attack and the discovery of a remedy which will bring relief when attacks occur." (10, p. 1015)

That such treatments have not been more effective, the writer is convinced, is because a large percentage of the common "garden variety" of migraine results from habitual affective involvement of the sympathetic nervous system. The individual is on a perpetual "emotional drunk!" The bodily changes resulting from affective responses produce the migraine along with many other bodily ailments—colitis and ulcers as claimed by Cannon (6) and constipation as

implied by Alvarez. (1)

It seems unfortunate that medical practitioners, recognizing the emotionality of migraine sufferers have not understood: First, that emotional responses to specific situations are very largely, if not entirely learned; and Second, that having learned to respond affectively to a situation, the individual can learn to avoid emotional responses to that situation. The physician has been handicapped in his thinking by seeing the patient, usually, only during the migraine attack and, thus, has been led to credit the emotional disturbances he observes to the headache, rather than seeing in the affective behavior of the individual direct causes of the physiological imbalance culminating in the headache. That the patient has not recognized emotional turmoil as the cause of his headaches is due partly to the fact that he has been "upset" emotionally for a long time and that there is, usually, a considerable delay between a severe emotional "storm" and the onset of the headache. The situation is further complicated, for both the physician and patient, by a variety of symptoms: indigestion, exhaustion, constipation, sleeplessness, etc. A great many migrainous individuals do recognize, however, a temporal relationship between situations in which they are extremely "emotional" and the headaches. The assurance with which they credit their headaches to the situation rather than to their behavior in the situation is a miracle of "wish thinking," if one may use such a term.

That emotional turmoil is the cause of migraine, barring pathology, is substantiated by reference to some of the bodily changes resulting from emotional states: (1) Release of glycogen as glucose from the liver with resulting increase of sugar in the blood and urine; (2) Contraction of the spleen with release of red corpuscles and increased density of the blood; (3) Acceleration of heart action, more rapid on the diastolic beat; (4) Contraction of many of the smooth muscles with attendant spasms of the stomach and intestinal tract; (5) Interruption of the normal processes of the parathyroids with resultant calcium deficiency; (6) Stimulation of the sweat glands with increased electrical conductivity; (7) Postural changes in the body such as are described by Landis (19); (8) Enlargement of the pupils with attendant discomfort from bright lights; and (9) Continuous neural activity as shown by Jacobson, (16) with failure of the nerve to get the needed rest or rehabilitation said by Lillie to be essential to proper nerve functioning. (15, p. 43) Findings in this field were summarized by Dunbar in 1935. (9)

During the past five years the writer has examined, psychologically, some hundred or more individuals whose physicians have classed them as "migrainous without organic cause." In all of these there have been severe emotional imbalance and postural characteristics which might reasonably contribute to their headaches—particularly tenseness in the cervicis and capitis muscle groups at the back of the neck and base of the brain. All had distinct soreness in these muscles, some of them complaining, "It is as sore as a boil," or "I can't stand to have it touched." All, characteristically, elevated the chin—due to contraction of these muscles. It is typical of them that the more excited they get the more they tense these muscles and that they keep them tense over long periods of time. Some report that the backs of their necks are always sore; others that they have soreness there only when they have headaches or do not feel well.

Physicians and physiologists with whom the writer has conferred are in agreement that tension of the capitis and cervicis muscle groups impedes cerebral circulation resulting in partial cerebral anemia and interrupts normal circulation of the cerebrospinal fluid. Such disturbances would, in terms of Fay's theory, result in headache if the tension were severe enough, protracted enough, or if the individual were sufficiently sensitive to such change. The adequacy of this explanation may be questioned, however, in view of the great adaptability of cerebral veins, capillaries, arteries, and of the brain itself, to changes in pressure. Inasmuch as relatively large amounts of cerebrospinal fluid may be withdrawn from many individuals without apparent discomfort, Fay's theory is open to further criticism.

At any event, the data presented in this paper indicate that at least a partial explanation of migraine is to be found in the affective responses of the individual to stimuli in his environment. This theory is substantiated by accounts, anecdotal and scientific, of individuals who have been relieved of migraine by change of attitude, acceptance of Christian Science, suggestion in the form of "bread pills" or bread-pill advice, freedom from stimuli to which they had habitual affective responses—relatives, financial difficulty, fear of punishment, concern over loved ones, etc.

THE DATA

These data come from the case records of forty individuals (13 men and 27 women) all over twenty-one years of age, and classed by their physicians as "migrainous, without or-

ganic cause." Clinical and observational data are quite extensive, from both psychological and medical points of view. Most of the forty individuals were referred to the writer by their physicians. Psychological data, in addition to many hours of observation, include test records of mental ability, attitudes, interests and personality, and psychogalvanometer readings. Sex behavior and attitudes towards sex have been checked by repeated questioning in all cases. Every attempt was made to arrive at the facts without embarrassment to the individual. In some instances, reticence in discussing sexuality, falsification of statements, or absolute refusal to discuss the question presented an obstacle which was overcome only after several hours of consultation. In such instances sexuality was ignored as completely as though it were the individual's age, income, or occupation that he did not wish to discuss.

Twenty-one years was set as the lower age limit for this report because of a conviction that satisfactory data on sexuality might not be secured for younger persons. Individuals for whom reasonably complete medical and psychological data were not available were excluded from the study.

A decision as to whether an individual had migraine was determined through medical diagnosis. Sexual maladjustment, as a means of classification, was employed only after checking and rechecking the statements and behavior of the individual. An individual was not considered to be maladjusted sexually simply because he was interested in sex, nor because his sex behavior did not conform to legal and social sanctions. Nor was he considered to be adjusted sexually simply because his behavior was socially and legally impeccable. "Sexual adjustment" was taken to mean that the individual accepted sex as a definite biological urge without undue emotionality over its meaning, use, or consequences. "Sexual maladjustment" was used to signify an excess of fear or worry in relation to sex.

So far as these data are concerned, sexual adjustment may be satisfactory with, or without, coitus, in, or out of marriage. It is not so much what the individual does about sex that determines whether his adjustment is hygienic mentally as the matter-of-factness with which he accepts the problem and his decisions relative to it. Some of the most highly disturbed of these forty individuals, so far as sex is concerned, are, and always have been, models of puritanic propriety. Some of the least disturbed over sex have records of one "affair" after another over a period of

many years, frequently several of them running concurrently.

In presenting these data an attempt is made to separate symptoms and causes from factors having no relationship to migraine. In doing this the writer is aware that symptoms and causes usually intensify each other in such cases —the affective attitude inducing the emotional imbalance and the pathology reinforcing the faulty emotional tone. The differentiation is presented despite its limitations, however. It must be remembered that these individuals are not representative of the general population but are migraine sufferers for whom there is no apparent organic disturbance. In all of them there were demonstrable emotional difficulties. As they learned emotional control the headaches abated, correction of emotional imbalance and of headaches being almost simultaneous. In other words, as habits of excessive affective response were overcome the headaches diminished in severity and frequency and as the headaches abated, emotional tone became more cheerful, more hopeful and more hygienic. While it is permissible to say that correction of excessive emotionality brought relief from headaches, it is equally true that learning that the headaches could be prevented or aborted simplified the problem of maintaining emotional control.

DATA FOR FORTY MIGRAINE SUFFERERS

Numbers of individuals falling into the various classes are given below. The total of married, single, widowed and divorced individuals exceeds forty because four of the five divorced individuals have remarried. Causative and symptomatic classifications are separated according to the judgments of the writer, even though there is considerable overlapping between them. Reasons for this differentiation are discussed in the body of the paper.

General

Males (Ages 21-65, Mdn., 32) 13
Females (Ages 21-73, Mdn., 32) 27
Married (Males, 7; Females, 9) 16
Widowed (Males, 1; Females, 1) 2
Divorced (Males, 1; Females, 4) 5
Single—Never married (Males, 4; Females, 13) 17
Housewives 14
Clerical workers 13
Professional 7

Business administration 2
Retired 1
Unemployed 1
Laborers 2
Eighth grade but not high school graduates 5
High school but not college graduates 28
College graduates 7
Superior mental ability 29
Average mental ability 11
General health satisfactory 36
Vision satisfactory 28
Teeth satisfactory 40

SYMPTOMATIC

Migraine headaches, no organic base 40
Soreness at back of neck 40
Chronically rapid pulse 39
Supersensitive to normally bright lights 36
Poor sleep 36
Chronic indigestion 33
Vision affected by headaches 32
Cold, clammy hands and feet 32
Chronic constipation 31
Chronic leucorrhea (of 27 women) 19
Chronic fatigue 16
Sexual maladjustment (Married, 6; Single, 8) 14
Migrainous relatives, immediate family 14
Homosexual, extreme worry over sex 1
Economic need 9

CAUSATIVE

Present family adjustment unsatisfactory 37
Unhappy childhood 35
General excitability 34
Worry over health 26
Fear of people and of their opinions 25
Introverted* 20
Neurotic* 19
Lack of confidence in self* 19
Extreme worry over sex 19
Worry over money 19
Worry over future aside from money 17
Submissive with resentment* 16
Dissatisfied with job 14

Extreme sex excitement 14
Unsociable because of fear of people* 11
Fearful dependence on others* 8
Strong suicidal thoughts 6

* These ratings are based on scores from the Bernreuter *Personality Inventory*, plus the judgments of the writer. An individual is classed as extremely introverted, neurotic, etc., if he scores below the ten percentile on the scale and if the judgment of the writer agrees with this rating.

DISCUSSION

1. *Age and Onset.*

The wide age-range of these forty patients is typical of the experiences of other investigators. (22) It was impossible to determine, with any degree of accuracy, the age at onset of the migraine in enough cases to justify inclusion in the data. Some traced the headaches back to pubescence; others said that they had had them as long as they could remember. In the opinion of the writer, the headaches begin when the necessary pathological states are established. This may come about in early childhood. If the emotional strain is not great enough, if the necessary bodily states are not habituated, if the individual is very rugged, or has unusual resistance to emotional imbalance, the headaches may not appear until much later in life. If his experiences in early life are not exacting but become so later, migraine may result, providing he has not learned emotional control in early life. If his early experiences in life are very exacting, migraine may result and abate later when his goals in life are more nearly attained, when some of the pressure has been removed, or if he has learned to control his emotional responses as many do without specific instruction. Numerous business and professional people report that the migraines they had while they were trying to establish themselves diminished, and eventually abated entirely, later in life. In every such instance cessation of migraine followed, very shortly, cessation of fear that they would not be successful, economically or professionally. Several women state that migraine disappeared with the menopause. In each such instance there had been fear of the menopause. Many women have morbid fears of insanity at the time of the menopause. Quite naturally, such fears are more common among the emotionally unstable and are, themselves, evidence of emotional instability. It is a considered opinion of the writer that any individual can be trained to have migrainous headaches since they may be induced in suf-

ferers from migraine almost at will by confronting them with situations or ideas to which they have strong emotional responses. One young man in particular was so conditioned to thoughts of his father that any protracted discussion of the father was followed by a headache. On several occasions when he was free from headaches they were induced by discussing his relations with his father or by having him discuss them.

2. *Sex as a factor.*

The fact that more women than men consult physicians relative to migraine is not conclusive evidence that men are less susceptible to migraine than are women. It may be that men are more stable emotionally than women and, resultantly, less likely to have migraine. On the other hand it may be that women are more prone to consult the physician about their aches and pains than are men.

3. *Marital Status, Occupation and Schooling.*

The data on marital state, occupation, and schooling seem not to be significant. It will be noted that the individuals under discussion are quite superior from the standpoints of vocation, schooling and mental ability. This does not mean that migraine sufferers in general, are superior in these respects. It only shows the type of individual who can afford, or does come to, the private practitioner or consultant, because of migraine. As to whether migraine is as common to the "lower" social brackets, it is doubtful that we have any satisfactory answer at present. There is no reason to assume, however, that they are free from migraine merely because they do not consult a physician or psychologist about it.

In terms of these forty individuals marital status is not a contributing factor to migraine. Migrainous married persons who have come under the writer's observation and who have consulted him had migraine, or extreme emotional imbalance before they married. It seems that an individual who is emotionally unstable prior to marriage is likely to become more so afterwards. If one is emotionally stable prior to marriage one is not likely to become emotionally unstable in marriage.

4. *Sex Behavior.*

The sex behavior of these forty individuals is particularly interesting. A summary of findings is given below:

Married, sex satisfactory with coitus in marriage only	9
Married, sex satisfactory outside of marriage	1
Married, sex satisfactory without coitus	1
Single, sex satisfactory with coitus	4
Single, sex satisfactory without coitus	9
Married, sexual maladjustment (coitus out of 2, not out of 2, none 1)	5
Single, sexual maladjustment (with coitus 6, without 5)	11
Total	40

While no claim is made that these data are 100% accurate, there is every reason to believe that they are more so than those usually reported. It will be remembered that "sexual adjustment" is defined as an acceptance of sex as a definite biological urge without undue emotionality over its meaning, use or consequences, and "sexual maladjustment" as an excess of fear or worry in relation to sex. In the marital state, "sexual adjustment" usually means that neither party has any excess of fear relative to sex, that they both want sex at about the same times and with equal frequency, and that both get adequate reaction and satisfaction out of it. As previously stated, in terms of these forty individuals, sex may be adjusted satisfactorily with, or without coitus, in or out of marriage. Of the seventeen married persons for whom data are reported, eleven are classed as satisfactorily adjusted to sex. Nine of these were strictly monogamous with coitus. One had made a sexual adjustment outside of marriage due to the invalidism of his wife and one had eliminated coitus on account of her husband's health. Of the five married persons whose sexual adjustments are classed as unsatisfactory, two had coitus out of marriage, two had no coitus out of marriage, and one had not had coitus at all during more than two years of marriage. Of the thirteen single persons whose sex adjustments are classed as satisfactory, four had coitus more or less regularly and nine had never had coitus. Of the eleven single persons whose sexual adjustments are classed as unsatisfactory, six had had coitus more or less regularly and five had never had coitus.

5. *Sexual Adjustment*

So far as the writer can determine: Sexual maladjustment bears no causal relationship to the onset, duration, frequency, or severity of ordinary migraine headaches. Sex-

ual maladjustment may occur without headaches and with little or no emotional disturbance over any other aspect of life. Migrainous headaches may arise from habits of excessive excitement without maladjustment towards sex and with no apparent personality disturbances towards any aspect of life. The individual may adjust to sexuality in himself and in others so well that he thinks very little about it, responds markedly only in situations where the sexual pattern is completed to the entire satisfaction of both parties (and with no regrets), and yet have headaches from emotional imbalance. Or, he may have sexual maladjustment characterized by abnormal stimulation, extremes of masturbation, homosexuality, or impotence, without suffering from migraine. On the other hand, sexual maladjustment or migraine, or both, may be associated with a wide variety of personality difficulties and with extremes of physiological imbalance and impaired health.

Twenty-four of these forty individuals are classed as having satisfactory sex adjustments. Nineteen of the forty are classed as unduly concerned over sex and eleven of these as having undue sexual excitement. Sex is not the all-potent factor in personality that some fields of thought and much popular fancy would make it. It is merely one of the many aspects of life to which the individual can respond in a multitude of ways. His responses may be hygienic in terms of social, physiological, and psychological consequences. They may be unhygienic physiologically (As in the case of a socially prominent grandmother who lived at a peak of sexual excitement yet never experienced an orgasm during thirty years of married life). Or, they may be unacceptable socially and yet be hygienic physiologically and psychologically (As in the case of a young woman of twenty-eight who married recently after a series of "affairs" over a period of ten years, yet gave no evidence of emotional disturbance towards any aspect of sexuality).

6. *Types of Migraine*

As to type of headache, these forty individuals fall into nearly all the categories listed in the literature. Eleven of them report that in addition to periodic attacks their headaches have been constant, or nearly so, some over a period of many years. The remaining twenty-nine report that their migraines have been periodic, occurring at intervals from every day or so to once or twice a month. Following is a summary of their reports:

	With Constant Headaches	Periodic Headaches Only
With pain only	3	15
Accompanied by visual disturbances only	1	8
Accompanied by nausea and vomiting only	5	5
Accompanied by facial pains only	0	0
With visual disturbances and facial involvement	0	0
With nausea and facial involvement	0	0
With visual disturbances and nausea	1	1
With visual disturbances, nausea and facial involvement	1	0
Total	11	29

In general, it may be said that those suffering from incessant as well as periodic headaches were in a state of emotional turmoil practically all the time. Inasmuch as the headaches usually follow an emotional debauch, sometimes by as much as several days, it is safe to say that those who suffered from constant headaches did not have sufficient time to recuperate from one attack before emotional turmoil brought on another. A careful check of the behavior of those suffering only periodic attacks of migraine revealed that, for the most part, their headache attacks followed, usually by a few hours or a day or so, a severe emotional storm. In the case of women it was particularly noticeable that the approach or onset of menstruation was accompanied by migraine. When they learned to rest better and came to think of menstruation with less emotion this situation was corrected, very largely or entirely. It appears that the migraine was a result of the emotional turmoil associated with menstruation rather than a result of the menstrual cycle. One young woman, in particular, had been having headaches with each menstrual period for ten years or more when this was discovered by the writer. An explanation of the situation, in the presence of her husband, apparently resulted in cessation of the emotional turmoil at the time of menstruation and in elimination of the headaches. She had not had such a headache during a period of ten months prior to the last report.

7. *Pulse*

A chronically rapid pulse is characteristic of most of these forty migrainous individuals, 120 to 130 beats per minute being not uncommon during the examination period. Securing pulsation records on these individuals is quite difficult. In the early stages of an examination they are under considerable emotional excitement. Even when they sit "still," as they call it, or lie down in a quiet, darkened room, the pulse rate seldom falls below eighty or ninety. Even the process of counting the pulse frequently results in a marked acceleration. Quite often, in such cases, if the pulse rate is twenty for the first fifteen seconds of a minute, it will be twenty-five or thirty the second and third fifteen seconds.

8. *Vision*

Thirty-six of the forty complain of discomfort from mild glare and ordinarily bright lights (Unfortunately no glarometer records are available) and thirty-two of the forty report that their vision is affected by their headaches. Some say that their vision blurs occasionally when they are excited or have a headache; others that they cannot use their eyes any length of time without discomfort. Four for whom oculists' examinations revealed no visual defects had secured glasses under the impression that there was something wrong with their eyes because bright lights bothered them. One case in particular reported that she could not use her eyes more than ten minutes or so at a time without dire results. Actually, this was the situation as any task calling for realistic thinking resulted in enlargement of the pupils and rigidity of the eye-muscles. She reported that during such periods she "just couldn't see anything clearly." In no case has the wearing of glasses decreased discomfort materially where there was no refractive justification for them. One woman, a seamstress, showed more rapid improvement emotionally following correction by her oculist. In all these cases the individual has been instructed to accept the findings of his oculist and that, where the findings are negative, or corrected with proper lenses, he will be able to use his eyes effectively if he controls his emotions. It is worthy of emphasis that attempts at correction of emotional imbalance should be accompanied by proper medical treatment where such is indicated. It may be assumed that any physical pain or discomfort, toxicity or depletion of energy constitutes a stress which makes emotional control more difficult.

9. *Sleep*

Poor sleep, as reported by these individuals, is not identical with the judgments of the writer. In some instances the individual reports that he sleeps well because he goes to sleep readily, because he does not dream (or cannot remember his dreams), or because he sleeps soundly for many hours, sometimes as much as ten or twelve or more a day. Most of those who consult the writer have read newspaper accounts of the frequency with which persons move during the night, the grotesque positions they assume, etc. and are convinced that such gymnastics are normal, even though they wake up tired or dream incessantly. Others think that because they sleep soundly they are sleeping properly.

In terms of these findings, poor sleep is characterized by any one, several, or all of a variety of symptoms: Inability to go to sleep readily, waking during the night, restlessness during the night with marked disarray of the bed clothing, cramped positions or straight rigid positions, much moving, clenching the hands, grinding the teeth, etc., dreaming to the extent that dreams are remembered, sleeping too many hours a day, waking tired, and possibly others. In contradiction to Freudian principles, it is found that people do not dream when they have learned to relax properly before going to sleep. Dreaming is, apparently, complete evidence of faulty sleep.

10. *Indigestion*

Chronic indigestion is reported by the individuals or revealed by their medical records in thirty-three of the forty cases. It varies in degree from one woman who had nausea almost incessantly to others who complain only of slight difficulty in breathing or occasional indigestion. In some instances the individual was unaware of indigestion despite the statements of the physician that there was excess gas in the stomach. Protuberance of the stomach is common in such cases. They usually eat rapidly, eat when they are tired or excited and have feelings of "tightness" in the pit of the stomach and throat. Many of them complain of "heart burn" and have come to wonder if their hearts are not out of order. It is quite common that they credit their headaches to the indigestion. In the opinion of the writer, both indigestion and headache in such instances are symptomatic of emotional imbalance, though they, undoubtedly, aggravate each other. Learning to be calm, to eat slowly, never to eat when tired or excited, etc. almost invariably results

in cessation of the indigestion as well as of the headaches. It seems to the writer that indigestion is more prevalent among those who are undernourished, some being thin almost to the point of emaciation. Most of these have developed distinct fears of normal intake of food. They are convinced that a heavy meal would make them sick, that they cannot eat many foods, and all of them have little or no appetite.

11. *Extremities*

Cold, clammy hands and feet are characteristic of thirty-two of the forty. Some are so bad that the hands appear blue in the warmest weather. It is not uncommon for perspiration to drip from their hands to the floor as they sit still during the first interviews. Some report that they had to give up playing the piano or sewing because of wet hands. Several men say that they have quit dancing because they ruin the clothes of their partners. Most of them are aware of the condition of their hands and feet though some report that their feet are warm when, actually, they are almost ice-cold. In the opinion of the writer, most of these individuals have been in a state of emotional turmoil for such a long period of time that they have lost awareness, to some extent, of the condition of their bodies. When they pay more attention to themselves and less to those about them they gain control of bodily movements, and bodily functioning becomes normal. The fault with most of these individuals is, not that they pay too much attention to themselves, but that they pay too little. Instead of being "self-centered" they are focusing their attention on those about them, and are worrying about things outside of themselves: "What are others thinking of me?" "What will happen next? Etc." There is reason to believe that, instead of being "Introverted" in the general meaning of the term, these individuals are suffering from attention, coupled with emotional response, to too many situations, individuals, happenings, etc. outside of themselves and are, at the same time, giving too little attention to regulating the functioning of their own bodies. At least, when they learn to pay attention to themselves, to get the "feel" of various parts of their bodies at rest and in a state of normal activity, physical well-being as well as emotional states becomes more healthy. It is not claimed that they are not disturbed about themselves. It is found, however, that concern over self is largely in terms of fear and that when focused exclusively on self is lacking in constancy of attention.

12. *Constipation*

Thirty-one of the forty say that they have chronic constipation. In all of these cases there is fear that their digestive systems and excretory systems are not "sound" and the conviction that they must take laxatives regularly to keep their bowels open and to avoid toxic conditions. In the opinion of the writer, the constipation of these individuals is frequently more imagined than real, as described by Alvarez. (1) In a good many cases, however, there is tangible evidence from medical examinations that they are so tense, that normal peristalsis has been interrupted so long by faulty emotional tones and by medication that normal evacuation is extremely difficult. When they learn, as Alvarez puts it, "to leave their bowels alone," and to maintain a more hygienic emotional state, evacuation usually becomes normal.

13. *Leucorrhea*

Chronic leucorrhea is reported by nineteen of the twenty-seven women. How severe this is, how much it deviates from normality for women or for the women concerned, we have no method of determining. Lessons in relaxation, avoidance of undue stimulation, explanations of the physiological bases of leucorrhea, and mild douches of powdered alum (prescribed by physicians) almost invariably result in marked decrease of vaginal secretions. In most of these cases there are reports of dysmenorrhea and menorrhagia, the menstrual flow frequently lasting from five to seven days. Training in relaxation, avoidance of excitement, worry, etc. usually cut the time of menstruation from twenty-five to fifty percent.

14. *Fatigue*

Sixteen of the forty cases report that they are chronically tired or "worn out." Whether this state is to be accredited to physiological fatigue, particularly of the nervous system as described by Lillie (15, p. 43), or is a product of the imagination, or a combination of both, is unknown. Most of the sixteen claim to be "weak and exhausted" when, in reality, they are, probably, stronger than the average and so hardy that in times of extreme emergency, such as a death in the family, or any catastrophe which occupies their attention, they work vigorously over long periods of time. It is not uncommon for them to claim that they are weak when dynamometer readings of grip for both hands are

average or better, and when other measures of strength such as ability to resist pressure tending to bend the limbs at elbows and knees is entirely satisfactory. It should be noted, however, that most of them show definite inability to tense the muscles of the body rigidly. Whether this is due to faulty coordination or lack of confidence in ability to maintain rigidity in the muscles cannot be determined from the data available. In the opinion of the writer, a good share of it is due to the fact that the individuals have neglected their own bodies so long that a good deal of disuse has crept in. In other words, they have merely forgotten how to control the movements of their own muscles.

15. *Economic Status*

According to these data, economic need is as likely to be symptomatic of faulty emotional adjustment as to be a cause of it. Individuals with faulty emotional balance, feelings of frustration, of inferiority, etc. tend to quit trying to better their economic conditions. It is very likely that economic need is not directly related to worry over money matters. As distressing fear of poverty is found among those who have no immediate economic needs and for whom the likelihood of poverty in the future is very remote, as among those in actual want. Fear of economic insecurity is, apparently, as common to the wealthy and moderately well-to-do as to the very poor.

16. *Family Relationships*

While faulty family adjustment is indicative of poor emotional balance it is classed as a major causative factor in migrainous headache. Thirty-seven of the forty individuals discussed in this paper have some sort of family trouble. Most of them complain of their relatives and are prone to blame their troubles on family turmoil, what other members of the family do, on husbands, wives, mothers, fathers, brothers or sisters who find fault with them, talk too much, expect too much of them, make too much noise, play the piano or the radio too loudly, find fault with the way they dress, how they walk, the friends they have, etc., etc. While it is recognized that the response to such situations, where they exist, results in increased bodily tension, and so on, it is equally true that most of the faulty emotional reactions of the individuals under discussion have been learned from others in the family environment. Probably, it would be better to class faulty family adjustment as both symptomatic and causative. It is quite general of these individuals

that they find a great many faults with their families. It is equally true, however, that the individuals, themselves, are very poor judges of members of their families. Not uncommonly, extended observation of members of a migrainous individual's family reveals very little faulty emotional balance in the family aside from the migrainous one himself. This is particularly true of husband or wife who come from families of emotionally unstable people but marry individuals of good emotional balance.

Thirty-five of the forty individuals indicate that they considered their childhood environment unhappy. In some instances they hesitate to make such statements, preferring to protect members of their families, even from the feared criticisms of the examiner. In the opinion of the writer, faulty family environment in childhood is responsible for most of the emotional imbalance in adults and, indirectly, of their headaches. That faults in the family environment of childhood were made so deliberately is, of course, untenable. The evidence seems conclusive that no member of a child's family deliberately set out to make him afraid or doubtful of himself, etc. In most instances mistakes in training the child were unwitting. The parents from whom the children learned faulty emotional behavior were themselves victims of faulty emotional balance in their own childhood homes, and so on. In directing the attention of the migrainous individual to methods by which he may have learned to be fearful, excitable, etc., it is of utmost importance that this be specifically pointed out. Even though an individual may dislike a parent or parents very much he is likely to feel that they should not be blamed. Furthermore, a feeling of resentment towards a parent for faulty training in childhood is diametrically opposed to fundamentals of corrective training, for if the individual is to learn to control his emotional behavior he must not build up a new emotional response of resentment towards family.

17. *Excitability*

Thirty-four of the forty give evidence of excessive excitability. They talk too loud, move too much, pay too much attention to what goes on about them, or are too sensitive to noises and to other people, and are characterized, to a considerable extent, by continuous manifestations of several of the elements of the startle pattern described by Landis. Not only are they peculiarly susceptible to startle, but they seem to have, to a considerable extent, the appearances of persons who are always startled.

18. *Worry over health*

Twenty-six of the forty are unduly concerned over their health though the health records of thirty-six of the forty are reported as satisfactory by their physicians. Worries range from concern over teeth (which their dentists say are in satisfactory condition) to concern over the liver, gall bladder and, in terms of one woman, "My bowel nerve is injured." It is not uncommon for them to maintain that they are sick when as a matter-of-fact they seldom have anything seriously wrong with them aside from the malfunctioning occasioned by emotional turmoil. One may say, if one prefers, that they do not, or cannot, believe medical and dental findings relative to their condition. They know that they do not feel well and search incessantly for an organic explanation. That the physician finds nothing wrong with them means only, to them, that he has overlooked something or that they have some obscure ailment which is beyond the ken of the medical profession. A part of this attitude results from failure of the physician to explain that bodily functioning can be upset by emotional imbalance and that they need not expect to feel well as long as they remain in that condition. To the writer it seems, furthermore, that many of these individuals overemphasize the severity of their pains and aches. Ailments that the average individual would dismiss as of no consequence, they watch constantly and, resultantly, are likely to be disturbed emotionally. In consequence, any ache or pain that can be intensified by emotional imbalance tends to become more severe and to last longer than it would if the individual were interested in something else. Whether negative adaptation takes place as readily with individuals of this type as with the normal is worthy of careful laboratory examination. It is not uncommon that they are concerned over the beating of their own hearts, throbbing in the temples, tinglings in the extremities, etc. While there is some reason to believe that their hearts do "pound" somewhat more than is normal, due possibly to restriction of the cardiac and pleural cavities from nervous tension and from gas in the stomach forcing the diaphragm upwards, it does seem that the concern with which they view their physical conditions is out of proportion to any discomfort that they may feel.

19. *Fear of People*

Twenty-five of the forty seem unduly concerned over what others think of them. While actual physical fear is

seldom present much time is spent wondering what others think of them and, of course, imagining that whatever it is, it is uncomplimentary. It is not unusual for very intelligent individuals to place undue emphasis upon their own, real or imagined stupidities, and conclude that others must consider them very feeble of intellect. That they have not arrived at any valid comparison between themselves and others, either in terms of ability, health, or appearance is common and is evidence of the emotional attitude with which they have approached problems of personality and social adjustment. Undeniably, a striving for perfection is one of the major faults of many of these individuals. All too frequently they are not as tolerant of themselves as of others. Errors that they overlook in others they cannot forgive in themselves. That they had no intention of making the mistakes that they do make is beside the point. In their thinking, an error is an evidence of weakness or stupidity or of wickedness. These attitudes arise out of early training in which a parent or parents, siblings or teachers, impressed upon the child that he should do everything perfectly. That they accepted this viewpoint and tried to live up to it is probably evidence of inherent sensitivity to criticism because of which they have sought to avoid the displeasure of others by doing exactly what they thought was expected of them, or, it may be a result of inherent docility, or both. Whatever the cause, it is a serious liability in the lives of many migraine sufferers and a satisfactory outlook on life is impossible until it is relinquished, in part, at least. It is not uncommon to find that an individual who is very much afraid of people is still very sociable, or that a very sociable individual is markedly afraid of the opinions of others. In some instances an individual strives for the constant association of others in order that he may not be alone. Some of these cannot find anything to do by themselves; others are afraid that they might commit suicide or go crazy if left to themselves. It is not uncommon that such an individual may have a wide group of acquaintances and quite a number of rather intimate friends, very few of whom recognize any elements of fear in the individual. The general trend is that individuals of this type associate with others who are as fearful as they. There is probably some justification for saying that these individuals enjoy talking about their troubles, though not all of them do. A general "letting down of the hair," as is said when people confide their troubles, is not uncommon to those of this type. That they only intensify their fears by talking them over with

others of their own type is very difficult for them to learn. They have marked difficulty grasping the idea that they are likely to remember best the things of which they think and talk, and that a sound therapeutic method is to associate with people who do not have such fears and who will not listen to their discussions of them. It is quite a shock to most of them to realize that they have seldom, if ever, had valuable advice from those with whom they have discussed their troubles. The idea that advice is seldom of value unless it comes from one who knows more about the subject than the individual does is quite new to them, and they need to learn that advice regarding problems of emotional balance and personality adjustment should come only from those who have no emotional concern over the situation.

20. *Introversions*

In terms of the Bernreuter Personality Inventory (the lowest ten percent) twenty of these individuals are "introverted," nineteen are "neurotic" and nineteen are lacking in "self-confidence." These classifications are made only in case the observations of the writer confirm the scale ratings. In the experience of the writer, individuals who score at the extremes on the self-rating scales of personality are likely to be that way as judged by extended observation and other findings. That he does not rate himself as extremely "introverted, neurotic, submissive," etc. is not adequate proof that one is not that way, however. Whether he deliberately conceals his thoughts from the examiner, or whether he has made so much effort to convince himself that he is not afraid, morbid, unsure of himself, etc. that he actually believes that he is not, is not certain. As far as the writer can determine, there are many persons who think they are not afraid of certain situations who, nevertheless, make definite fear responses to these situations and who have, in many instances, seriously impaired the functionings of their bodies by these reactions. It is the conviction of the writer that an individual may overlook or ignore the physiological states of emotional turmoil as successfully as he may ignore certain sure evidences of bodily defect—astigmatism, dental caries, a shortened limb, a spinal curvature, etc. A logical explanation seems to be that these individuals learned emotional responses very early in life and that the habits of physiological response survived in spite of matured judgments that the situations should not be feared, worried over, etc. In other words, it has seemed to the writer on numerous occasions that individuals had all the manifestations of fear

or excitement except the ideational interpretation of the bodily sensations accompanying definite physiological responses. Needless to say, the impairment of health from prolonged emotional imbalance in such cases is as great as though the individual thought he were excited or afraid. In the opinion of the writer, one may be afraid without thinking he is afraid, or he may think he is afraid and, actually, not be afraid. It is quite as easy to be deluded in interpreting emotional states as in interpreting other types of data. This is particularly noticeable in the case of some women, who, apparently with complete conviction, maintain that they have no disturbance over sex, yet have all the physiological responses of sexual excitement—excessive leucorrhea, unusual interest in, and response to men, as such, etc.

21. *Fear of the Future*

Nineteen of the forty show abnormal worry over money though only nine seem to be in any economic need. Worry over the future, aside from money is almost as common, seventeen individuals showing abnormal concern over what the future has in store for them. Some of these fear that they will not make the friends they wish, that they will not live long enough to do the things they wish to do, that they will not marry satisfactorily, that there will be another war, that they will lose their looks, that they will get fat, that their cars will not last well, that their loved ones will die, have accidents, etc., etc. There seems to be no limit to the number of futurities that some of these individuals can worry about.

22. *Submissiveness*

Sixteen of the forty are extremely submissive (lowest 10% on the Bernreuter scale) and are resentful of those who dominate them. The mere fact that an individual is not dominant, that others do most of his planning for him, and that others tell him what to do most of the time, is not an indication of emotional disturbance. When this is associated with extreme resentment it is unhygienic, however. In some instances it is desirable that the individual free himself from the domination of others; in others that he learn to accept the directions of others without resentment. The latter is particularly true for individuals of poor ability who are associated closely with more capable if unemotional individuals who wish to plan for them, and of the very disturbed emotionally during the early stages of corrective training. The emotionally unstable need to rely upon the

judgments of others until they have attained emotional balance to the extent that they can safely trust their own judgment in matters of importance. In correcting emotional imbalance the individual must trust the judgment of the psychologist, of his physician, of the psychiatrist, etc. if he is to make a rapid adjustment. If he is so fortunate as to have an intimate relative or friend of sound judgment on whom he can depend while attaining emotional balance himself he is particularly fortunate. In any instance he must learn not to avoid those whose domination he resents. He should learn to tolerate those who would "boss him around," as he puts it, and to study them, to analyze their statements in a strictly objective fashion and to use those of their ideas that he finds applicable to his own problems.

23. *Vocational Adjustment*

Fourteen (seven men and seven women) give evidence of extreme dissatisfaction with their vocations, or with their jobs, or both. Three of these (all men) were working at things which did not challenge them mentally and in which lines of work there was very little future. One woman was working for a firm she never should have been satisfied with and not until the firm had to let her go, through no fault of her own, did she have the courage to seek another position. This she obtained within a week and she has been reasonably satisfied over a period of two years.

Generally speaking, individuals who are intensely dissatisfied with their jobs become reasonably well pleased with them when they acquire emotional balance. It seems to the writer, that they are miserable, fearful, etc. and are prone to blame their relatives and friends when they "get nervous." It is not uncommon for them to say that "So and so makes me nervous every time I see him," etc. They fail to recognize that their responses do the damage and that in their states of excitement and discomfort they are peculiarly irritable. That more of them are not extremely dissatisfied with their jobs is surprising to the writer. Careful questioning elicited the information that many of them were happier at work, felt more important there, etc., than they did at home or in social situations and, presumably, were more pleased with their jobs than they were with other aspects of life.

24. *Sociability*

Eleven of the forty evidence extreme unsociability (lowest ten percent on the Bernreuter Scale) associated with fear of people. All of these expressed a desire to be sociable but

were fearful of failure. In the experience of the writer, the mere fact that an individual is unsociable is not unhygienic, nor necessarily undesirable. Many individuals live quite comfortably by themselves with little thought of others and achieve outstanding results in fields necessitating solitude. Nevertheless, the person who avoids others because of fear of their opinions, because of a conviction that he cannot meet social situations well, etc., is likely to suffer considerable emotional turmoil and when faced with the necessity of meeting others, to worry about his social inadequacy.

25. *Self Reliance*

Eight of the forty are extremely dependent upon others because of lack of confidence in their own judgments. All eight are of superior mental ability but do not quite believe that they are capable. They depend upon others because they do not believe in themselves and then dislike themselves thoroughly because of their dependence. When they learn to trust their own judgments, to avoid procrastination, and to eliminate self-censure over minor failures, they obtain great pleasure from making up their minds for themselves. Not until they learn to take their abilities to arrive at proper decisions in a thoroughly unemotional manner are they adequately adjusted. It is probably true that as many individuals get into difficulties through trusting their judgments in fields in which they are not qualified to judge as have emotional turmoil through lack of confidence in their ability to judge in fields in which they are qualified.

26. *Suicidal Thoughts*

Six of the forty (1 divorced man, 1 widower, 2 married and 2 single women) admit strong suicidal thoughts. Some say that they are too cowardly, that they think it is wicked, and others that they would "end it all" but for those who are dependent upon them. At least these six have carefully considered ways and means of suicide and two of them tried it, though with what earnestness of purpose, one cannot say. How many of the forty have seriously considered suicide but will not admit it cannot, of course, be said. To the writer it seems that those who consult him are more averse to admitting suicidal intentions than they are to admitting irregularities in sexual or business matters.

SUMMARY

Examination of the literature on migraine reveals almost chaotic confusion as regards its fundamental nature, causes, and treatment. Apparently its characteristics are as diverse as are its victims, one, many, or all of the associated symptoms accompanying an attack.

The immediate causes of migraine are almost completely ignored in the literature, the exception being Fay's theory (11) that headache is due to stretching of the large blood vessels that supply the brain (caused by imbalance of the fluid in and around the brain). Certain inadequacies of Fay's theory are discussed in the body of this paper. (p. 6) The completeness with which most writers avoid discussion of the physiological, anatomical, or pathological bases of migraine (whatever they may be) probably indicates only that we know very little about disorders of the autonomic nervous system except through malfunctioning of muscles and glands, and that these writers are fully aware of the situation.

It appears that most students of migraine have given most serious consideration to the elements they observed initially or to the ones they attempted to treat, neglecting to correlate the mass of findings and observations on the individual. Such procedures have led to an undervaluation of emotional imbalance as an associate of migraine and its casual relationship has been overlooked, though it is generally conceded to be a precipitating factor. Conceivably, the acquisition of emotional balance through association with a calm and confident physician may have resulted in a correction or diminution of migraine in many individuals during medication, the medicine receiving credit rather than the improved emotional state. The general recurrence of migraine subsequent to a period of medication may mean that the individual had achieved only a partial emotional adjustment, i.e., with the physician as a part of the immediate environment but not in other situations. Undoubtedly this recurrence of migraine has contributed to the conclusion, commonly expressed in the literature, that medication of migraine is almost exclusively palliative.

The findings presented in this paper are based on analysis of psychological and medical data for forty individuals (13 men and 27 women) between the ages of twenty-one and seventy-three who had been classed by their physicians as "migrainous without pathology." The writer has attempted to formulate opinions and present conclusions from the

findings for these forty individuals alone. It is scarcely to be expected, however, that his judgments are unaffected by acquaintance with other migrainous individuals for whom data were not complete enough for inclusion in this report. The conclusions that follow are presented with due respect to the limitations of the data as well as to the inescapable bias of the writer:

1. Emotional turmoil is directly responsible for the migrainous headaches of these forty individuals. The physiological states and bodily postures basic to emotional imbalance probably result in a pathological physiological state characterized by migraine.
2. An excess of residual tension in the voluntary muscles is characteristic of the jumpy, nervous, irritable, migrainous individual. This excess manifests itself in the involuntary muscles as "affective neurosis" with muscular spasm more predominant than glandular imbalance.
3. Age-at-onset of migraine cannot be determined. In the opinion of the writer it varies with the emotionality of the individual, with the musculature involved in the emotional imbalance, and with the physiological imbalance required to constitute pathology in a given individual.
4. Migraine in these forty individuals is associated with: Extreme tension and soreness in the capitis and cervicis muscle groups, chronically rapid pulse, supersensitivity to glare, poor sleep, chronic indigestion, visual disturbances, and cold, clammy extremities.
5. Sex, marital state, occupation, mental ability, sex behavior, schooling, sexual adjustment, and economic status bear no causal relationship to migraine, so far as these forty individuals are concerned.
6. Emotional imbalance in these forty individuals is characterized very largely by: Family incompatibility, unhappy childhood, general excitability, worry over health, and fear of people. The emotional components (visceral, glandular and skeletal) of the individual's reactions to stimuli in his environment are the significant elements, not the so-called fast, hurrying age in which he lives.
7. Any type of emotional imbalance may be associated with migraine, but migraine of non-organic origin does not occur without emotional imbalance. It is essential only that the necessary physiological and postural states be established and that they persist a sufficient period of time. Apparently these are acquired as conditioned responses in childhood or adolescence.

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